

Application of Chih-Ta Star Sung - U.S. Application No. 10/712,138

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CENTRAL FAX CENTER****OCT 23 2007****Amendments to the Claims:**

1. (Currently Amended) A method for decoding a video stream,
comprising:

~~maintaining a DCT bit stream table in a storage medium, wherein the
DCT reference bit stream table includes pairs composed of DCT reference bit
streams and block pixel data, the block pixel data providing inverse DCT
information of the corresponding DCT reference bit stream;~~

applying the variable length decoding scheme to decode the video bit
stream and block by block recovering the DCT coefficients and dequantizing the
coefficient by multiplying the quantization table and inverse transforming the
DCT coefficients to matrix of pixel values;

VLD decoding video stream and maintaining a DCT coefficient table in a
storage medium, wherein the DCT coefficient bit stream table includes pairs
composed of DCT coefficient bit streams and block pixel data, the block pixel
data providing inverse-DCT information of the corresponding DCT coefficient
bit stream;

looking up the DCT bit stream table when receiving a VLD decoded
DCT input stream to find whether the new DCT input bit stream coefficient
matrix matches a DCT reference bit stream coefficient matrix; and

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utilizing the block pixel data corresponding to the matched DCT
~~reference bit stream~~ coefficient bit stream to generate inverse-DCT data of the
DCT input bit stream if the DCT bit stream table includes the matched DCT
~~reference~~ coefficient bit stream.

2. (Currently Amended) The method of claim 1, further comprising the
steps of decoding the DCT bit stream and saving the decoded result into the DCT
bit stream table if the DCT input stream fails to matched any DCT reference bit
stream in the DCT bit stream table.

3. (Original) The method of claim 2, further comprising the step of
compressing the decoded result saved in the DCT bit stream.

4. (Original) The method of claim 1, wherein the DCT input bit stream
and the DCT reference bit stream are matched if the DCT input bit stream and
the DCT reference bit stream are identical.

5. (Original) The method of claim 1, wherein the DCT input bit stream

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and the DCT reference bit stream are matched if a difference of the DCT input bit stream and the DCT reference bit stream is lower than a predetermined threshold.

6. (Original) The method of claim 1, further comprising a step of representing a target block with a decompressed block pixels' within neighboring blocks if a compressed stream of the previously saved block streams is identical to a target block stream.

7. (Original) The method of claim 1, wherein a threshold value is compared to a weighted difference of compressed DCT coefficients of at least one previously saved block and a target block for determining the similarity.

8. (Original) The method of claim 7, wherein a weighted difference between at least one previously saved block stream and a target block stream is applied to determine whether a lossy decoding is applied in decompressing the video bit stream.

9. (Original) The method of claim 8, wherein one of previously

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saved decoded blocks is selected to represent a target block if a weighted sum of DCT coefficient difference between a target block and the closest block saved in the storage is less than a predetermined threshold;

10. (Original) The method of claim 1, wherein a compressed bit stream and the corresponding decoded pixels of farer distance from a target block can be overwritten when the storage device of storing compressed bit stream and decoded pixel is short of space.

11. (Original) The method of claim 1, wherein a decompressed bit stream is compressed before being stored to a buffer for future representing a new block stream.

12. (Original) The method of claim 1, wherein a decompressed bit stream is compressed through a lossless compression mechanism before being stored to a buffer and is decompressed for future representing a new block stream.

13. (Canceled)

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14. (Canceled)

15. (Canceled)

16 (Currently Amended) An apparatus for decoding a video stream,
comprising:

a bit stream decoding unit including a VLD, variable length
deciding and reconstructing the video bit stream to DCT matrix and a
DeQuantization unit multiplying the DCT matrix to inverse transforming and
recovering the block of pixel matrix;

a storage device for storing compressed video data stream and
corresponding decompressed pixel data of at least one previous block ;

a device circuit of comparing a coming compressed stream to at
least
one previously saved stream; and

a device circuit of selecting one of previously saved decoded
blocks to represent a target block if a target block is identical to one of the
previously saved blocks.

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17. (Original) The apparatus of claim 16, wherein an output of a comparator is used to select the decoded pixels to represent the target block pixels.

18. (Original) The apparatus of claim 16, wherein decoded block pixels represent the target block pixels by copying the decoded block pixels.

19. (Canceled)

20. (Currently Amended) The apparatus of claim 13, wherein in decompressing an I-type frame and JPEG still pictures, one of previously decoded and saved blocks is selected to represent the target block ~~without going through a motion compensation device.~~

21. (Canceled)